Mike Mistal
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201-221-1258

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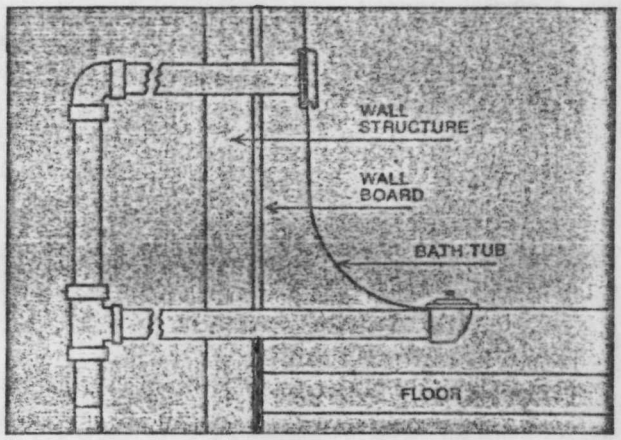

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- ✱ Permits head over-flow tube to go horizontally thru any wall thickness.
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- ✱ Ideal for pre-fab bath rooms.
- ✱ All piping and traps can be concealed in the wall or crawl space.
- ✱ Available in toe-control model or chain and stopper models.
- ✱ Exclusive lock plate allows cleaning thru over-flow.

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(Prefix "F") Chicago Code Tee available

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Paul Supply
Orville Kaplan

United States Patent [19]

Cuschera

[11] **4,103,372**

[45] **Aug. 1, 1978**

[54] **POP UP DRAIN FITTING**

[76] Inventor: **Casper Cuschera**, 800 Durham Rd., Fremont, Calif. 94538

[21] Appl. No.: **773,138**

[22] Filed: **Feb. 28, 1977**

[51] **Int. Cl.**[2] **A47K 1/14**; E03C 1/26

[52] **U.S. Cl.** **4/286**; 4/287; 4/295

[58] **Field of Search** 4/287, 286, 295, 290, 4/289; 251/74, 229, 254, 227, 58

[56] **References Cited**

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3,771,177	11/1973	Rogers et al.	4/287
3,995,333	12/1976	Stephens	4/286
4,007,500	2/1977	Thompson et al.	4/295

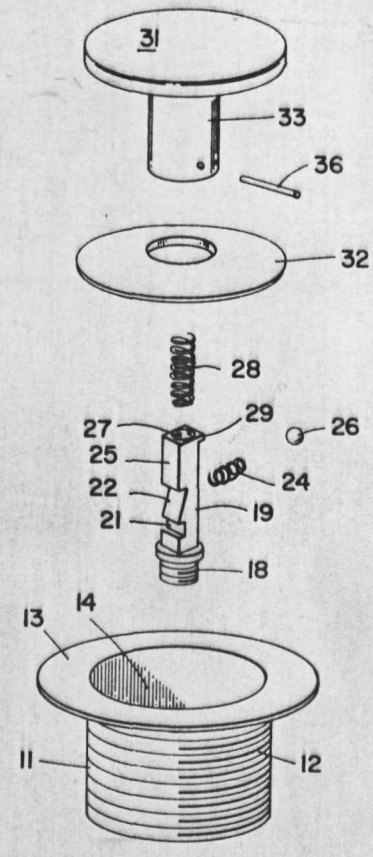
Primary Examiner—Henry K. Artis

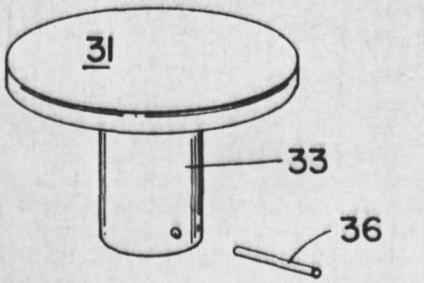
Attorney, Agent, or Firm—Harris Zimmerman

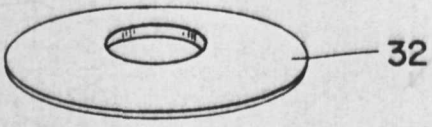
[57] **ABSTRACT**

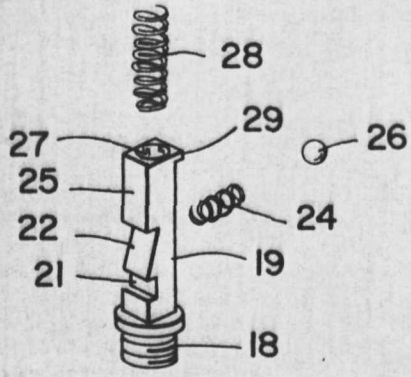
A selectively sealing drain fitting includes a tubular drain body having a spider in the lower end thereof. An upwardly extending rectangular post is joined to the center of the spider, and is provided with a lateral slot in one face thereof and an oblique camming surface directly superjacent thereto. A drain sealing cover is provided with a downwardly depending hollow tubular portion which is received about the rectangular post and maintained in an eccentric disposition thereabout by an eccentric dog extending laterally from the upper end of the post. A compression spring disposed within the tubular portion of the drain cover biases the cover upwardly, and a latch pin extending laterally through the tubular portion of the cover engages the camming surfaces and the slot in the post in detent fashion. A laterally extending spring within the post biases a ball which is axially aligned with the eccentric dog to impinge on the inner surface of the tubular portion of the cover and maintain exact parallel eccentric alignment of the tubular portion and the rectangular post.

1 Claim, 5 Drawing Figures









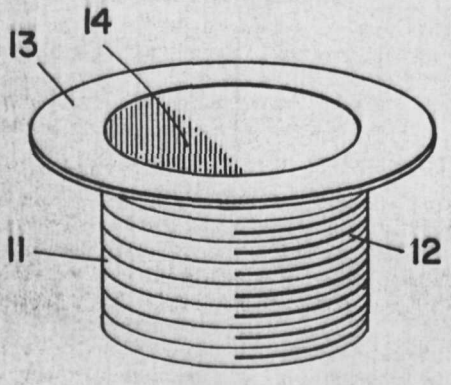


FIG_1

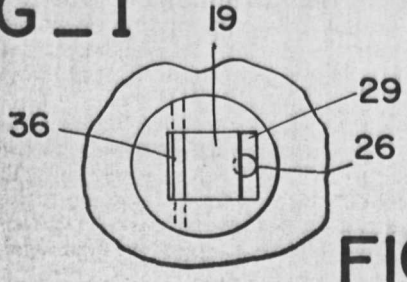


FIG_2

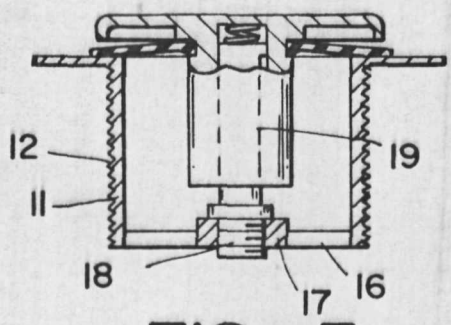


FIG_3

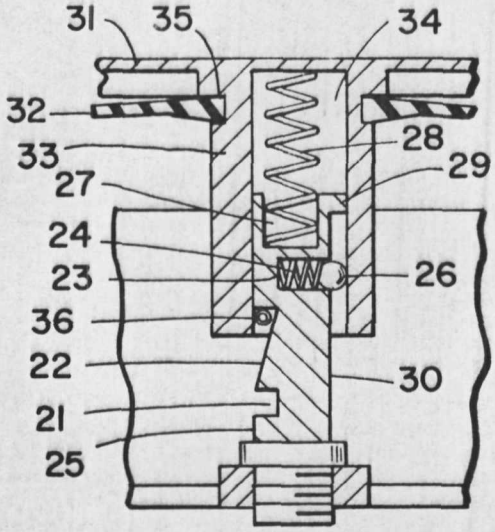


FIG_4

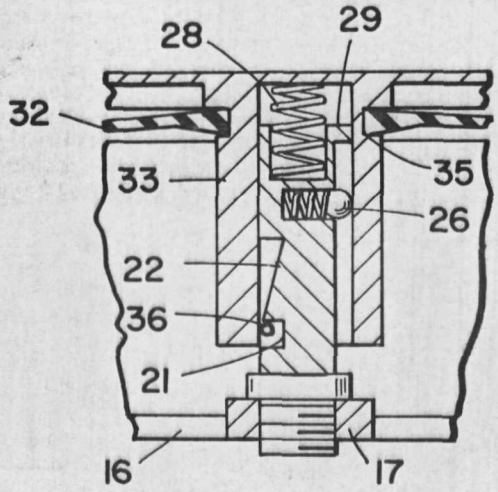


FIG_5

POP UP DRAIN FITTING

BACKGROUND OF THE INVENTION

The following U.S. Pat. Nos. exemplify the state of the art of selectively self-sealing drain valves:

3,771,177
3,428,295
3,380,081
3,366,980
2,173,529

It is well known in the art to provide self-sealing drains, particularly in household use for bathtubs, sinks, and the like. These self-sealing drains are generally provided with a remote actuator which is linked to the drain itself by a lever or chain arrangement. Over a period of years, these drains and the lever or chain linkages undergo erosion and wear, and eventually fail. Due to the fact that the linkage is usually located within a wall or beneath a bathtub or sink, it is usually quite difficult to gain access to the linkage for the purpose of making repairs. Because of the expense involved of such repairs, a homeowner often avoids such costs by providing a replacement sealable drain valve which does not require a remote actuator.

Generally speaking, these replacement drain valves may be installed in the body of the original drain valve, and often include a drain cover which translates axially to seal the top opening of the replacement valve. The prior art devices have often relied on the resiliency of a rubber boot or the like to bias the drain cover upwardly to an open disposition. Experience has shown that rubber or similar resilient materials loose their elasticity and resiliency rather quickly when they are exposed to repeated cycles of wetting and drying. The corrosive effects of the detergents found in soaps and shampoos enhance this effect. When the resilient material fails, the replacement valve itself must again be replaced.

Also, the prior art devices generally include a latch detent mechanism which secures the drain cover in a closed position. To release the drain cover, it is necessary to press one portion thereof to disengage the latch. For the uninitiated and uninformed, it is an inconvenience to attempt to determine which portion of the cover must be pressed to open the drain valve.

SUMMARY OF THE PRESENT INVENTION

The present invention generally comprises a selectively sealable drain valve which may be operated with greater ease than those known in the prior art, and which does not rely on elastomeric material for its spring biasing effect. Thus the drain valve has fewer maintenance problems and a longer useful life.

The drain valve of the present invention generally includes cylindrical drain body which is provided with a radially extending flange at the upper end thereof. A disc-like cover member is disposed concentrically to the flange and in superjacent relationship thereto, and an annular gasket extending radially from the cover member is adapted to impinge on the flange and seal the valve.

The lower end of the valve body is provided with a spider to which an upwardly extending rectangular post is secured. The rectangular post is slidably secured within a tubular member depending from the cover member of the valve assembly. A rectangular compression spring interposed between a counterbore and the top of the rectangular post and the cover member biases the cover member upwardly to the open position.

The rectangular post is provided with an obliquely extending camming surface on one side thereof, the lower end of the camming surface extending to the lip of a laterally disposed detent slot. A latch pin extending chordally through the tubular member is disposed to ride on the camming surface, and also to engage the detent slot.

Extending from the upper end of the rectangular post, in opposition to the camming surface and detent slot, is an eccentric lip. The lip maintains the tubular member in eccentric relationship with the rectangular post. The post also includes a laterally disposed hole, in which a biasing spring and ball are disposed. The ball impinges on the interior bore of the tubular member to maintain the axis of the tubular member parallel to and laterally offset from the axis of the rectangular post.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view of the selectively sealable drain valve of the present invention.

FIG. 2 is a laterally cross-sectional, detailed view of the rectangular post and tubular member of the present invention.

FIG. 3 is a partially sectioned elevation of the drain valve of the present invention.

FIG. 4 is a cross-sectional elevation of the central portion of the present invention, shown in the open disposition.

FIG. 5 is a cross-sectional elevation of the central portion of the present invention, shown in the closed disposition.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The selectively sealable drain valve of the present invention generally includes a tubular body member **11** which is provided with external threads **12**. The body member **11** includes an axially disposed bore **14**, and a radially outwardly extending flange **13** extending from the upper end of the body member. At the lower end of the body member **11** there is secured a spider **16** which supports an axially disposed ring **17**. The ring **17** is provided with a concentrically disposed threaded hole, as shown in FIG. **3**.

The drain valve also includes a generally rectangular post **19** which includes a lower threaded end **18** adapted to be secured in the threaded hole of the ring **17**. One vertical surface **25** of the rectangular post **19** is provided with a laterally extending detent slot **21**. The same vertical surface is also provided with a ramped camming surface **22** extending from the upper lip of the slot **21** upwardly and obliquely inwardly, as shown in FIG. **1**.

The vertical surface **30** of the rectangular post, which is opposed to the vertical surface **25**, is provided with a radially extending hole **23**. Disposed in the hole **23** is a helical compression spring **24**, and a ball **26**. The spring **24** biases the ball **26** radially outwardly, for reasons which will be explained in the following description. Extending from the upper end of the surface **30** is a lip **29**. As shown in FIGS. **1**, **4**, and **5**, the lip **29** extends laterally outwardly only from the surface **30**.

Disposed in the top of the rectangular post **19** is a center bore **27**. Seated in the bore **27** is a helical compression spring **28**, which extends upwardly from the rectangular post. The function of the spring **28** will be made apparent in the following description.

The drain valve of the present invention also includes a generally disc-like drain cover **31**. Extending downwardly from the drain cover and disposed concentric with the axis thereof is a tubular member **33**. The tubular member **33** is provided with a reduced diameter annulus **35**, shown in FIGS. **4** and **5**. An annular sealing gasket **32** is resiliently secured in the annulus **35**, with the peripheral portion thereof angled slightly downwardly with respect to the cover **31**. The outer diameter of the gasket **32** is greater than the diameter of the bore **14** of the drain valve body member, and the peripheral edge of the gasket is adapted to impinge on the flange **13** in sealing fashion to prevent any flow through the bore **14** of the drain valve.

As shown in FIGS. **3**, **4**, and **5**, the chamber **34** within the tubular member **33** receives the rectangular post **19**. The width of the post from side **25** to side **30** is less than the diameter of the chamber **34**, and the tubular portion **33** is disposed parallel to the post **19** and laterally offset therefrom. The lip **29** extending from the side **30** of the post maintains the lateral offset of the tubular portion **33**, and the spring biased ball **26** maintains the tubular portion in parallel alignment with the post **19**. It may be appreciated, however, that the cover member **31** may be rocked or pivoted about the lip **29**, the ball **26** being urged against the spring force of spring **24** into the hole **23**.

A latch pin **36** is also provided in the lower end of the tubular member **33**, extending along a chord through the chamber **34**. The latch pin **36** is disposed adjacent to the camming surface **22**, and is adapted to be retained in the detent slot **21**, as shown in FIG. **5**.

It may be understood that the compression of the spring **28** biases the cover **31** upwardly, so that the gasket **32** clears the flange **13** of the drain valve body by a substantial margin. In this configuration, there is free flow through the gap defined by the gasket **32** and the flange **13**.

To close the drain valve and prevent fluid flow through the bore **14**, the cover member is manually urged downwardly by pressure applied directly above the tubular member **33** or to a portion of the cover along a radius thereof opposed to lip **29**. As the cover is depressed, the latch pin **36** rides the camming surface **22**, causing the tubular member **33** to pivot slightly about the lip **29** and urge the ball **26** into its hole **23**. As the latch pin **36** reaches the detent slot **21**, the resilient urging of the spring **24** causes the latch pin to enter the slot **21**, as shown in FIG. **5**, locking the cover in the depressed position. The action of the spring **24** also causes the tubular member to reattain its parallel alignment with the rectangular post **19**.

In this disposition, shown in FIG. **3**, the peripheral rim of the gasket **32** impinges upon the flange **13**. Thus the valve is sealed against any flow through the bore **14**. It may be appreciated that any pressure loading due to liquid accumulating above the valve will merely increase the sealing action of the gasket **32**.

To release the drain valve from the closed, depressed position shown in FIG. **5**, the cover member is again depressed in the general area along a radii parallel with the lip **29**. This action urges the ball **26** into the hole **23**, and releases the latch pin **36** from the slot **21**. The expansive force of the spring **28** then urges the cover member upwardly, opening the valve and allowing flow therethrough. The upward travel of the cover member is limited by the impingement of the latch pin **36** and the ledge defined by the upper extent of the camming surface **22**.

It should be noted that the combined action of the springs **28** and **24** provide a very positive locking action, while permitting easy release of the latch pin from the detent slot **21**. Furthermore, the springs **24** and **28** are not subject to the effect of aging and corrosion, as were the elastomeric resilient means known in the prior art. Thus, the present invention is longer lived than prior art devices, and will require less maintenance.

I claim:

1. In a drain valve including a drain body having a flow channel therethrough and a post extending azially through said flow channel, and a drain sealing cover provided with a tubular portion having a central passage receiving said post for slidable translation thereabout and radial clearance therefrom, detent means in one axially extending surface of said post for selectively securing said post and said tubular portion with said drain sealing cover sealing said flow channel, said detent means being disengageable by rocking said tubular portion about the upper end of said post, the improvement comprising first compression spring means for biasing said drain sealing cover upwardly to clear said flow channel; and resilient means for biasing said tubular portion radially to oppose said rocking disengagement of said detent means, said resilient means including a hole extending radially into said post, the opening of said hole being in opposed relationship to said one axially extending surface, a detent member disposed in said hole, and second compression spring means for biasing said detent member into impingement with said central passage of said tubular member.

* * * * *

United States Patent [19]

Politz

[11] 3,823,964

[45] July 16, 1974

ESCUTCHEON WITH POSITIONING MEANS

Inventor: William E. Politz, Delphi, Ind.

Assignee: Stephen A. Young, Monticello, Ind.

Filed: Jan. 5, 1973

Appl. No.: 321,453

U.S. Cl. 285/46

Int. Cl. F16l 5/00

Field of Search 285/46, 158, 162, 187, 285/403; 16/2; 248/256; 403/197

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3,615,108	10/1971	Toth	285/46

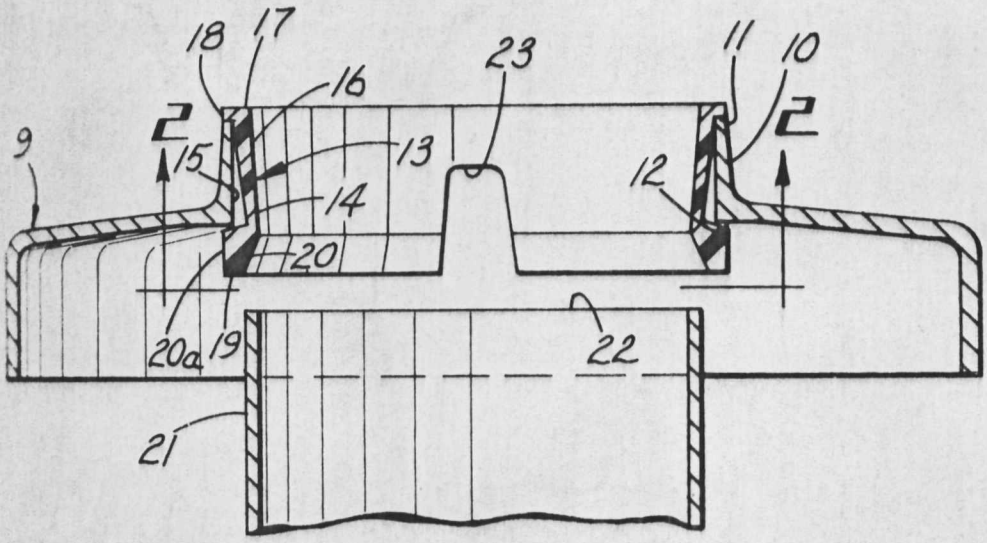
Primary Examiner—Alfred R. Guest

Attorney, Agent, or Firm—Robb & Robb

[57] **ABSTRACT**

There is disclosed escutcheon construction for use in conjunction with concealed plumbing fittings, and having grippings means of resilient form removably mounted therein, said gripping means including a taper area, notches related thereto and retaining means whereby the escutcheon may be slidingly engaged with a sleeve and positioned therealong, the gripping action being such that the escutcheon is firmly and uniformly located.

6 Claims, 5 Drawing Figures



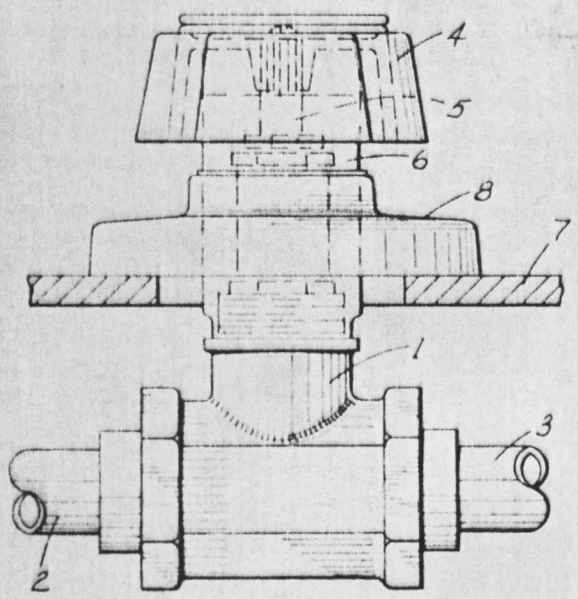


Fig. 1

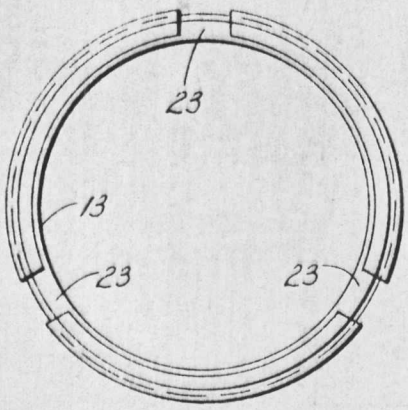


Fig. 2

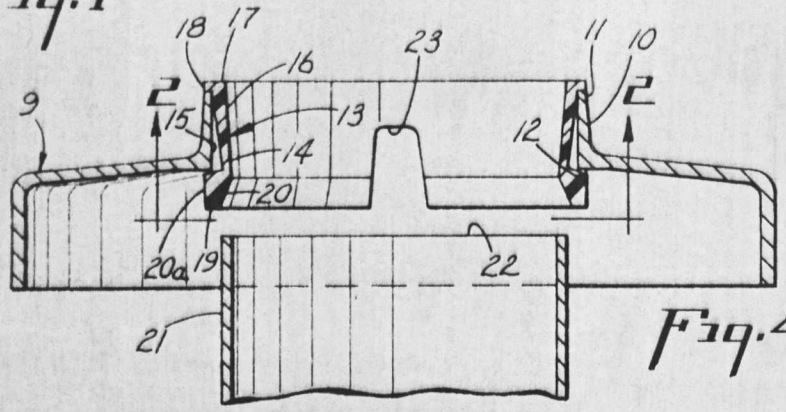


Fig. 4

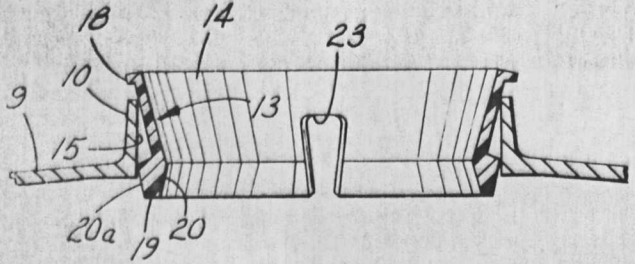


Fig. 3

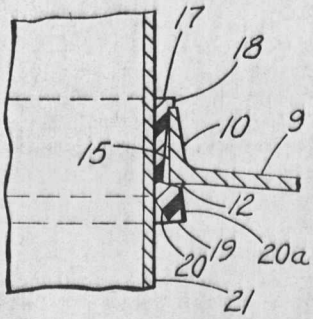


Fig. 5

SCUTCHEON WITH POSITIONING MEANS

OBJECTS OF THE INVENTION

s a principal object of this invention to provide an ved form of escutcheon for use with concealed bing fittings which will be positioned accurately niformly along a sleeve engaged with the fitting xtending from the wall, the escutcheon being de- y adjustable along the sleeve and yet so firmly en- f therewith that without more substantial effort e required to move the escutcheon.

urther object of the invention is to construct the cheon with an insert therein comprising gripping s which will be of simple construction, easily in- d into the escutcheon and yet when engaged with leeve, firmly and accurately position the same on.

other object of the invention is to so arrange the ctive elements of the escutcheon, including the cheon itself, and the gripping means provided in, of resilient nature that it may be easily inserted d removed from the escutcheon, yet positioning sleeve made very simple by the configuration of ripping means, involving certain notches which re- the pressure at initial positioning, and yet do not rsely affect the gripping action when ultimately in

her and further objects of the invention will be un- ood from a consideration of the specification ap- led hereto and disclosed in the drawing, wherein:

G. 1 discloses the environment in which the es- heon construction hereof is used.

G. 2 is a bottom view of an insert used in this es- heon construction.

G. 3 is a fragmentary view in enlarged form and in on, illustrating the action of the insert when being ed in position in the escutcheon.

G. 4 is a greatly enlarged sectional view, showing nsert in position and in location for inserting the e therein or positioning the escutcheon and its ping means over the sleeve.

G. 5 is a fragmentary view in section, illustrating position of the gripping means in its ultimate en- ment with the sleeve and the escutcheon posi- ed thereon.

DESCRIPTION OF THE INVENTION

eferring now to FIG. 1, a concealed fitting of the re generally disclosed in this figure is denoted at 1, ding the usual supply 2 and outlet connections 3, rolled by a valve handle 4 which in turn operates m 5 to the interior of the valve 1 in the usual and ventional manner.

suitable sleeve generally denoted 6 of tubular form ranged to engage the valve 1 and extend outwardly a wall designated 7.

his sleeve is designated to enclose the stem and pro- a massive appearance, and it is therefore desirable ave the escutcheon generally designated 8, adjust- therealong so that variations in the depth to which valve is mounted in or behind the wall 7 may be ac- modated for and the escutcheon slidingly engaged the sleeve so as to be adjustable therealong for this pose.

aving the foregoing in mind, the escutcheon con- ction is now referred to in detail as disclosed in

FIGS. 2 5 inclusive, the escutcheon comprising in this instance a skirt generally designated 9 which may be of any particular configuration but having at its center thereof a central tubular portion 10, integral with the skirt 9, and extending upwardly therefrom.

Shoulders 11 and 12 are formed at opposite ends of this tubular portion 10 for purposes which will hereinafter appear.

The resilient generally cylindrical collar 13 is comprised of a body section 14 to be received in a bore 15 of the cylindrical or tubular portion 10 previously referred to, and is provided with a taper area 16 which extends downwardly and inwardly from one end designated 17, this end 17 being in turn provided with retaining means 18 which is in the form of a peripheral enlargement

The body section 14 of this collar 13, as shown in FIG. 4, is of suitable plastic material so that it is of resilient nature, and is further equipped at its other end 19 with an additional peripheral enlargement 20*a*, which peripheral enlargement 20*a* is shown as being engaged beneath the shoulder 12 formed in the central tubular portion 10.

A bevel 20 extending upwardly and inwardly in the body section 14 is of such a nature as to suitably receive the cylindrical part 21 therewithin as suggested in FIG. 4 wherein the upper end 22 of said part is positioned slightly below this bevel 20.

Suitable notches 23 are formed in the body section 14, and add to the resiliency thereof for the purposes of inserting the collar 13 as a whole into the cylindrical bore 15, as suggested in FIG. 3 wherein the peripheral enlargement 20*a* is shown partially through the bore 15, and the notch 23 reacting to the squeezing of the enlargement 20*a* is decreased in area as will be readily observed.

It should be explained that there are preferably three notches formed in the body section 14 of a shape and extent about as suggested in the respective views.

Since the enlargement 20*a* is being compressed as the body section 14 is under compression, when the collar 13 as a whole has been moved into the position shown in FIG. 5 and in FIG. 4 likewise, the enlargement 20*a* will move outwardly so as to grip beneath the shoulder 12 as primarily suggested in FIG. 4.

The collar 13 as a whole will be retained in position within the tubular portion 10 by means of the retaining means including the enlargements 18 and 20*a*, as will be readily apparent.

With the collar thus positioned, the cylindrical part 21 may be engaged by the escutcheon so comprised of the collar and skirt, including the tubular portion 10, as to cause the expansion of the enlargement section 20*a* when the cylindrical part 21 is entered into the bevel 20, the part 21 ultimately being positioned as suggested in FIG. 5, and the gripping action of this part maintaining the escutcheon as a whole in the position to which it is moved along said cylindrical part.

It will be further observed that the length of taper area 16 is such as to extend over a substantial area of the corresponding cylindrical part and by reason of the tension under which the part is placed when expanded to receive the cylindrical part 21, in conjunction with the configuration of the enlargement 20*a*, will maintain the gripping inter-engagement of the collar and thereby position the escutcheon of which it is a desirably incorporated part.

I claim:

1. The combination with an escutcheon comprising a skirt, a central tubular portion integral therewith, said portion having shoulders at opposite ends thereof, and a cylindrical bore therethrough, of a resilient generally cylindrical collar having a body section to be received in said bore, said section having an internal taper area therein adjacent one end of said section and notches extending from the other end, whereby to permit expansion of at least a portion of said section when a cylindrical part is inserted therein to grippingly engage such part to retain the escutcheon in position thereon.

2. The combination as claimed in claim 1, wherein retaining means are provided at the ends of the body section to engage the shoulders of the tubular portion, and position the body section with respect to the escutcheon.

3. The combination as claimed in claim 2, wherein the retaining means comprise peripheral enlargements of the ends of the section.

4. The combination as claimed in claim 2, wherein the retaining means comprise peripheral enlargements of the ends of the section, and the notches are proportioned to facilitate the insertion of the end of the section at which the same are formed, into the tubular portion.

5. The combination as claimed in claim 1, wherein the said internal taper area extends partially through the section and the other end is beveled in the other direction from the taper area, whereby such cylindrical part may be inserted into the said section through said other end.

6. The combination as claimed in claim 1, wherein the said internal taper area extends partially through the section and the other end is beveled in the other direction from the taper area whereby such cylindrical part may be inserted into the said section through said other end, the taper area thereafter conforming to the surface of such part and resiliently gripping the same throughout a substantial distance therealong.

* * * * *

United States Patent Office

3,468,512

Patented Sept. 23, 1969

3,468,512

SELF-CONTAINED DRAINPLUG

William E. Politz, Delphi, Ind., assignor to Stephen A. Young, Monticello, Ind.

Filed Apr. 24, 1967, Ser. No. 633,039

Int. Cl. F16k 31/56; E03c 1/23

U.S. Cl. 251—74 5 Claims

ABSTRACT OF THE DISCLOSURE

This invention involves a device adapted to be removably mounted in the outlet of a bath tub or similar liquid container and includes a body which supports a closure member movable upwardly and downwardly by the toes of the user for example, with a locking arrangement provided to lock and/or release the closure which is normally biased into an open position the releasing arrangement being positioned about centrally of the closure member itself for ready manipulation and a locking device being a part of the locking arrangement and described as a tilting washer.

This invention relates to an improved type of drainplug primarily designed for use in a bath tub or the like, which drainplug includes in its mechanism all the necessary means to maintain the same in open or closed position in accordance with manipulation which may be resorted to by the toes of the user or, of course, other means as may be appropriate, the broad contemplation being that the closure can be manipulated into position to prevent outflow of water or the like in the bath tub through the drain opening. Release of the closure so that it will move into open position or drain position may be simply effected by manipulation of a centrally disposed post or release rod so that the closure will move out of closed position. The movement of the closure is in a vertical direction and as indicated biased upwardly normally so that usually it will be in open position when release is effected.

It is a principal object of this invention to provide a simplified structure which will enable the closure member to be manipulated into position by a downward pressure, retained in position against upward movement normally exerted by a spring, the means to retain it involving a locking arrangement which is releasable from a position above the closure to allow the biasing means to operate.

A further object of the invention is to provide a novel self-contained drainplug arrangement which includes in it all the necessary mechanism for operating the same and will positively shut-off the out-flow of water through the plug when desired, the closure being maintained in a locked or closed position by a simple device which is readily releasable upon suitable manipulation.

Another object of the invention is to provide a drainplug of the class described, in which the closure member is a part which involves the use of a skirt for contacting sealing surfaces and in conjunction with the body of the closure retain the liquid in the bath tub or similar container. The closure is movable upwardly and downwardly, downwardly by pressure upon the upper surface thereof and upwardly in response to a spring or the like which is provided to come into operation by release of a lock part, the releasing being effected above the closure and by simple manipulation of a release rod extending through the closure.

Other and further objects of the invention will be understood from a consideration of the specification appended hereto and shown in the drawing wherein:

FIGURE 1 is a sectional view illustrating the various parts in a position in which the drain is in a so-called

open condition to permit outflow of water and indicating the relationship of the parts to effect locking of the closure when desired.

FIGURE 2 is a view similar to FIGURE 1 with the closure operating to retain fluid in the bath tub in which the entire unit is mounted.

FIGURE 3 is a cross-sectional view taken about on the line 3—3 of FIGURE 1 looking in the direction of the arrows.

FIGURE 4 is an enlarged fragmentary sectional view illustrating further detail of a lock part and releasing arrangement therefor.

Referring now to FIGURE 1, the invention is shown as including therein a plug body generally designated 1, being a part having a cylindrical section 2 which is provided with a drain passage 3 therethrough, the section having suitable threads on the external surface thereof indicated at 4 so that it may be retained in a position shown in FIGURE 2 in a tub generally designated 5 and specifically in the drain opening of such tub.

The body 1 is provided at its upper end with a peripheral flange 6 having a seating surface 7 thereon, this being circular as will be appreciated.

The threads 4 are provided so that a lock nut 8 may be engaged therewith and by pressure against a suitable washer 9 engage a sealing member 10 to prevent leakage around the flange 7, all of the foregoing of generally conventional form and well known.

Disposed centrally within the drain passage 3, is a guide sleeve 11 being tubular and of relatively short length, mounted or supported in the upper end of the drain passage 3 by means of a threaded ring 12 having the arms 13 extending inwardly therefrom and suitably fastened to the guide or sleeve-like element 11 in any preferred manner. It is to be understood that the sleeve 11 may be integral with the parts 13 and the parts 13 of course being integral with the threaded ring 12 thus provide for assembly within the drain passage.

Suitable threads 14 on the ring 12 engage with threads 15 provided interiorly of the body and in the drain passage 3.

The sleeve-like element 11 is intended to support a cylindrical post 16 of substantial length, the post 16 having a closed end or bottom 17 which end or bottom 17 is provided on its external portion with threads 18 to receive a retaining nut 19 thereon, the nut 19 in turn supporting a lock spring 20, which lock spring 20 engages a lock part 21. The lock part 21 is a washer having an upwardly extending shoulder 22 formed integrally therewith, the shoulder 22 being located to abut the lower edge 23 of the guide or sleeve-like element 11 previously mentioned, so as to tilt the lock part 21 into the position illustrated in FIGURE 4 whereby the same will engage and grippingly co-act with the exterior surface 24 of the cylindrical post member 16 previously described.

As indicated, the cylindrical post member 16 is arranged to be threadedly engaged at its upper end by means of threads 25 formed thereon with suitable threads 26 formed in a boss 27 extending downwardly from a closure 28 which is arcuate in cross section and round in plan, having a skirt and flange arrangement 29 on the periphery of said closure so as to engage with a skirt 30 formed of flexible material such as rubber or the like which skirt is adapted to co-act with the surface 7 of the flange 6 of the plug body 1 as indicated in FIGURE 2 when the closure 28 is in its closed position as indicated in said figure.

Arranged between the upper edge 31 of the guide or sleeve-like element 11, and the lower edge 32 of the boss 27 formed on the closure 28 previously mentioned, is a spring 33 which normally biases the closure 28 into the position illustrated in FIGURE 1, the spring surrounding

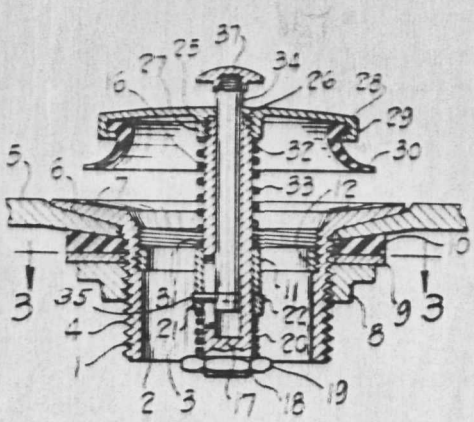


Fig. 1

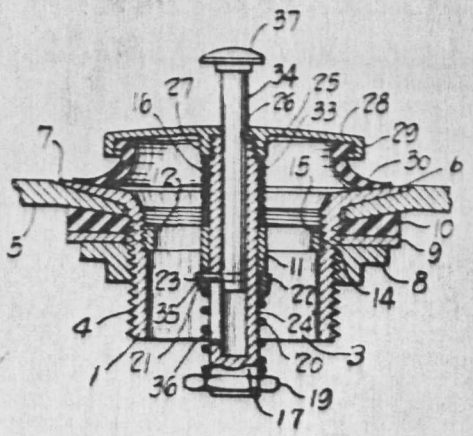


Fig. 2

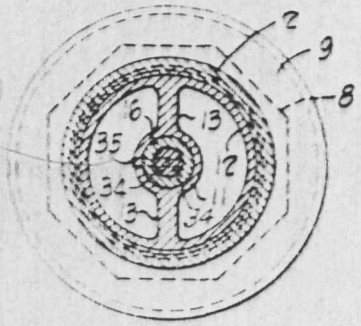


Fig. 3

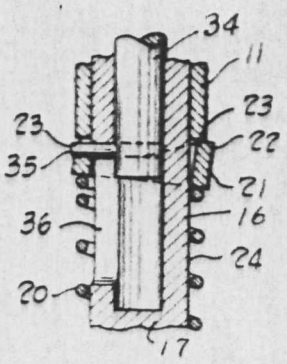


Fig. 4

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the cylindrical post **16** as will be readily apparent from a consideration of the respective figures.

Disposed within the cylindrical post member **16**, is a release rod **34**, having at its lower end a release pin **35** extending outwardly through a slot **36** formed in the post member **16**, into a position about as indicated in FIGURE 4 so that the said release pin **35** may engage the surface of the washer or lock part **21** to move the lock part **21** out of the tilted position disclosed in FIGURE 4 and thus out of its locking engagement with the exterior of the post member **16**.

This releasing action is effected by downward pressure exerted on the knob **37** on the upper extremity of the reelase rod **34**, this knob being positioned above the closure **28** so that it may be manipulated in any manner desired.

It will be understood that when the washer **21** is moved into a position which may be described as out of the tilted condition illustrated in FIGURE 4, the engagement of the said washer with the member **16** will be overcome against the spring **20** and allow the spring **33** to operate to move the closure into the normally open position of FIGURE 1.

It will thus be understood that downward pressure exerted on the closure **28** will cause the skirt **30** to move downwardly into engagement with the surface **7** of the plug body **1** and thereby close the drain passage **3**.

Suitable downward pressure momentarily exerted on the knob **37** and release rod **34** upon which the said knob is mounted, will move the tilted washer **21** into an untilted position and thereby cause the operation of the spring **20** and permit the spring **33** to go into action for upward movement of the closure **28**.

I claim:

1. In a drain shoe plug of the class described, in combination, a plug body, a drain passage in the body, a closure for said passage movable to open and close the same, means to retain said closure in closed position comprising a member extending from the closure into the passage, a guide for said member, means intermediate the guide and closure biasing said closure toward open position, a lock part on said member in the passage having means to grippingly engage the member when the axis of said part is tilted with respect to the axis of the member, and means in the passage to move the part out of tilted position to release the gripping engagement, said means being connected to a handle operable from a position above the closure.

2. The combination as claimed in claim **1**, wherein the lock part includes means to maintain the same in tilted position until release is effected.

3. The combination as claimed in claim **1**, wherein the member extending from the closure is cylindrical and connected at one end to the closure, said member extending downwardly through the guide to compel vertical movement of the member, and the means to move the part out of tilted position comprises a rod positioned in the member for vertical movement therein, a pin extending through the member to engage the locked part for moving the same out of tilted position, whereby to effect release of the member.

4. The combination as claimed in claim **3**, wherein a spring is mounted on the member to bias the closure to open position, a second spring acts on the lock part to position the same, said part having a shoulder portion to contact the guide to effect tilting of the part, said second spring likewise engaging the pin on the rod to maintain said pin and rod in position for movement of the part as stated.

5. The combination as claimed in claim **3**, wherein the guide is a sleeve-like element arranged about on the axis of the plug body, the cylindrical member moves up and down in the element, the closure being connected to the upper end of the member, a spring surrounds the member intermediate the element and closure to bias the latter toward open position, the part is washer-like and surrounds the member below the element, a shoulder on the part engages the element to tilt the part for locking, a second spring acts on the lock part to position the same, said second spring likewise engaging the pin on the rod to maintain said pin and rod in position for movement of the part as stated.

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4—295; 251—103; 287—58